IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/822,883	Confirmation No.:	4001
Applicant	: Kenneth Merdan		
Filed	: April 13, 2004		
TC/A.U.	: 3742		
Examiner	: Elve, Maria Alexandra		
Title	: INVERTED STENT CUTTING PROCESS		
Docket No.	: 1001.1748101		
Customer No.	: 28075		

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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Commissioner for Patents
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By JoAnn Lindman

Dear Sir:

Appellants have carefully reviewed the Final Office Action of August 10, 2009 and the Advisory Action of September 29, 2009. Currently, claims 1, 5, and 11-19, are pending in the application and have been rejected by the Examiner. Appellants hereby request a pre-appeal conference and file this pre-appeal conference brief concurrently with a Notice of Appeal. Favorable consideration of the claims is respectfully requested.

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers, if appropriate. Please charge any additional fees or credit overpayment to Deposit Account No. 50-0413.

Claims 1, 5, 7-8, 11-17, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Acciai et al. (U.S. Patent No. 5,855,802), hereinafter Acciai, in view of Pacetti et al. (U.S. Patent No. 6,695,920), hereinafter Pacetti, McCoy (U.S. Published Patent Application No. 2003/0234243), and references identified as Applicants' Admitted

Prior Art (AAPA). After careful review, Applicants must respectfully traverse this rejection.

In the final Office Action of August 10, 2009, the Examiner acknowledged numerous deficiencies of the Acciai reference:

> "Acciai et al. does not teach all the elements mounted to one table, the coupling of the linear and rotary motors, the presence of guides, the workpiece below the motor(s), the direct cutting using a laser, or the use of a coolant."

In addition, the Examiner has also acknowledged that Acciai does not disclose "a laser cutting system includes a laser/water jet hybrid" to be discussed below.

Indeed, Acciai does not appear to teach direct or indirect cutting of a workpiece and relies instead upon subsequent development of a light-sensitive coating and etching steps to remove unexposed portions of the coating and the immediately underlying portions of the solid wall. (Col. 1, lines 56-61.) Accordingly, those portions of the tubular wall which are exposed to laser illumination in the apparatus of Acciai do not appear to be removed, whether directly or indirectly.

Instead, Acciai teaches: "An apparatus for exposing a light-sensitive coating to a tubular article includes means for rotating and translating the article with respect to a light source, along a longitudinal axis and simultaneously exposing aligned portions of the interior and exterior cylindrical surfaces of the tubular member." (See Abstract.) Accordingly, Acciai does not teach an apparatus comprising a laser cutting system as recited in claim 1.

The light source of Acciai appears to be incapable of cutting even the light-sensitive coating which had been applied to the inner and outer surfaces of the tubular article. Were the apparatus of Acciai to be modified to cut through the tubular article or even to merely cut through the coatings, it would become unsatisfactory for its intended purpose of exposing the light-sensitive coating for the reason that it would destroy the coating which serves to resist the action of the subsequent etching step. (See MPEP § 2143.01 Part V.) In addition, the replacement of the apparatus for exposing a light-

sensitive coating with an apparatus for cutting a metal tube would impermissibly alter the principle of operation of Acciai. (See MPEP § 2143.01 Part VI.)

Further, the apparatus for exposing a light-sensitive coating of Acciai is constructed with opposed, vertically aligned optical systems:

> "The apparatus also includes a laser, a beam splitter in optical communication with the laser, and a bifurcated optical guide in optical communication with the beam splitter. The bifurcated optical guide has one arm that extends along the longitudinal axis and is positioned adjacent the exterior cylindrical surface of the tubular member when the tubular member is rotatably supported in the apparatus. The second arm of the bifurcated optical guide also extends along the longitudinal axis and is positioned adjacent the interior cylindrical surface of the tubular member when the member is rotatably supported in the apparatus. Each of the arms of the optical guide has a head portion that is aligned with each other and is adapted to transmit a respective beam of laser energy from the beam splitter to the head portion. A lens is disposed at each of the head portions of the arms of the bifurcated optical guide, and each of the lenses is constructed to focus a respective beam of laser energy onto the respective adjacently disposed cylindrical surface of the tubular member when the member is rotatably mounted in the apparatus."
> (Col. 2, lines 5-24)

This places the lens of the inner arm immediately below the lens of the outer arm. One of ordinary skill in the art would appreciate that this arrangement is highly undesirable in a cutting apparatus not only because of the risk of damage to the laser following breakthrough as the beams traverse the optical system in the reverse direction, but because molten metal and debris from the cut would fall directly on the lens. (See for example, U.S. Patent 6,521,825 at col. 8, lines 25-29 which teaches that it is necessary to block the laser beam as it cuts through the top surface of the tube to prevent molten metal from impinging on the relatively remote opposite wall of the tube. The location of the lens on the second arm of Acciai, being closer to the first wall would appear to be subject to unacceptable damage.)

Further, Acciai teaches away from prior art which require high, localized heating and cooling which would adversely affect the material properties of the stent and devotes the Background Art section at column 1 to the adverse effects of such heating. Accordingly, one of ordinary skill in the art would not be motivated to replace the relatively low power laser of Acciai with the high power cutting laser of McCoy or any

other cutting laser which would heat the stent, and particularly would not be motivated to do so in the opposed beam system of Acciai.

Acciai makes repeated references to the table (66) being a "precision table" and it was so characterized by the Examiner in the final Office Action; however the Examiner proposes that one of ordinary skill in the art would replace the precision positioning apparatus required by Acciai with the relatively crude rotation and translation system found in the coating apparatus of Pacetti. See for example, Figure 5 of Pacetti in which it appears that the stent is free to move longitudinally between stops (36) by about 8% of its length. This degree of inaccuracy, although acceptable in the coating system of Pacetti, would not appear to recommend the apparatus to one of ordinary skill in the art for precision positioning. In addition, the tube support system (20/22) of Pacetti would appear to allow the tube to rock laterally in and out of focus as well as to be positioned adjacent to the inner surface of the tube where it would interfere with the second arm of Acciai as well as blocking the exposing beam emitted thereby.

Further, the apparatus of Pacetti appears to place both the rotary motor and the stent of Pacetti above the linear motor (28) as opposed to the arrangement recited in pending claims 1 and 13. (See Fig. 2A.) Pacetti appears to be silent as to the mounting of a coating head relative to a first surface of a base to the second surface of which is mounted the apparatus of Pacetti and so does not appear to overcome this acknowledged deficiency of Acciai. In this regard, McCoy appears to employ a separate X-axis table (not shown) for the rotary and linear motors and mounts the workpiece through the cutting block assembly (25) rather than below it. McCoy appears to be silent with respect to details of the mounting of the laser; however it appears to be separately mounted requiring a Z-rail to move the laser and workpiece into focus relative to the lenses (36).

Claims 1, 5, 7-8, 11-17, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Acciai in view of Pacetti, McCoy, and Kranz (U.S. Patent No. 6,197,047).

In addition to the deficiencies noted above, the Examiner has acknowledged that Acciai, in view of Pacetti and McCoy, does not specifically teach a "water laser" and quotes col. 2, lines 29-34 of Kranz, with emphasis on the phrase, "a cutting jet of water preferably a laser beam". It appears that the phrase is missing a comma following water

as may be seen by comparison to the text at column 6, lines 1-5 in which it is stated that a water jet cutting process may be used; however a laser beam is preferred. The combination of water and a laser beam does not appear to be contemplated or taught by Kranz. Further, the addition of an alternate form of laser cutting would not overcome the deficiencies of Acciai, in view of Pacetti and McCoy as discussed above.

Claims 6 and 18 were rejected under 35 U.S.C. 103(a) as being unpatentable over Acciai in view of Pacetti, McCoy, and Kranz in view of Magnante (U.S. Patent No. 6,086,204). Magnante is asserted to provide a granite base not found in pending claims 1 and 13 and so does not appear to overcome the deficiencies of Acciai, Pacetti, McCoy, and Kranz as discussed above.

For at least these reasons Acciai, in view of Pacetti and McCoy, with or without Kranz and/or Magnante, does not appear to teach all the claim limitations found in claims 1 and 13, as is required to establish a *prima facie* case of obviousness.

If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). (MPEP 2143.03)

Accordingly, claims 5-8, 12, 14-18, and 19, which depend from nonobvious independent claims 1 and 13, also are believed to be nonobvious and Appellants respectfully request that the rejections be withdrawn.

For at least the reasons mentioned above, all of the pending claims are allowable over the cited prior art. Issuance of a Notice of Allowance in due course is requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 677-9050.

Respectfully submitted,

Date: Nov. 11, 2009

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